# THESIS FOR THE DEGREE OF CAND.MED

## Female surgical sterilization in Mursan, India

By
Hasina Moaddab
&
Somyeh Sajadian

Supervisors: Prof. Dr. Med. Babill Stray Pedersen
&
Director Midwife. Reidun Refsdal


**Faculty of Medicine**
**University of Oslo**
**Norway**

**Spring 2008**

## I. TABLE OF CONTENTS:

## II. ABSTRACT

**Female surgical sterilization at a sterilization camp in Mursan, Uttar Pradesh, India.**

**Hasina Moaddab, Somyeh Sajadian**

Faculty of Medicine, University of Oslo, spring 2008.

BACKGROUND: Laparoscopic fallopian ring reproductive sterilization is one of the common methods of contraception practiced by women in developing countries like India. This study was undertaken to study the women undergoing surgical sterilization, the way a sterilization camp is conducted in rural India when it comes to facilities, qualified staff, drugs, surgical procedure and postoperative complications.
MATERIAL AND METHODS: Data were collected from all women who underwent laparoscopic fallopian ring reproductive sterilization at the camp organized by The Methodist Health Clinic in Mursan and the government in December 2006. The women's age, number of living offspring's, the criteria for sterilization was recorded. Sterilizations statistics from 2001-2006 were collected from the Methodist Health Clinic. The anaesthesia and the surgical procedure itself were carefully documented. The way of planning and organization of a sterilization camp were investigated trough interviews with the staff. Our findings were compared to the existing literature, obtained trough search in Pubmed and Google.
RESULTS: 134 women underwent sterilization during a 6 hours-camp. Their average age was 26, 77 years and the average number of living offspring was 3, 9. Number of sterilization has increased from 125 in 2001 to 295 in 2006
CONCLUSION: Laparoscopic fallopian ring reproductive sterilization seems to be a safe procedure, when performed by experienced personnel under local anaesthesia. There were no immediate complications. We thought that the sterilization is conducted in an acceptable and beneficial way.

## 1. AIM OF STUDY

The present work is aiming to describe how sterilization of women is performed in India as a way of family planning.
The trip to Mursan gave two medical students with special interests in surgery an opportunity to observe the way a sterilization camp was conducted. We studied all aspects of the camp. Who were the group of patients? Fertility-related factors, namely, age at sterilization, number of offspring, and timing of sterilization.
We also wanted to observe the camp from the patients' aspect, how was the contact the with health personnel/facility? We wanted to learn about the surgical procedure, especially since this procedure rarely takes place in Norway. How do they organize the camps safely and efficiently with so many patients, few surgeons, limited equipment, and small available space?

## 2. BACKGROUND FOR STERILIZATION AS A FAMILY PLANNING METHOD IN INDIA

Our study is an observation study of a sterilization camp, which took place 04.12.06 in the Indian village Mursan in the district of Hathras. The sterilisation camp was organized by the Indian government and Methodist Public Centre. Their tasks were divided. The government was responsible for medical equipment, most of the medical staff (assistant nurses, nurses, surgeons etc). The Methodist Public Centre provided also staff, medical equipment, but most importantly the housing, in which the sterilisation took place.
The background for the need of sterilization camp is complicated, and at the same time very simple. The massive population growth in India the last decade stands out as an obvious reason. At the same time it is important to remember each woman who is sterilized, has a more predictable future. With increased number of offspring there are increased chances of maternal morbidity and mortality due to complicated childbirth. Women's life is at risk during the entire pregnancy because of insufficient healthcare. Pregnancy related diseases are not discovered. The pregnancy itself is a burden for the poor women, because they are in nutrient deficiency. The results can be low birth-weight babies, premature births, and in worst case death of baby, or mother, or both (7). Besides unwanted pregnancies are often terminated by unsafe abortions, which also have negative consequences for women's health.

To understand the organization and the background for Sterilization camps in India one must take a step back in time. "The National Population Policy Statement adopted by the Government of India in April 1976 states gave the mandate to adopt coercive and compulsory sterilization measures to bring under control the nation‘s massive population growth. Many states have since adopted stringent measures which penalize couples having three or more children, and four states additionally have proposed legislation for compulsory sterilization after the third child, an option that is undisputed, the administrative feasibility of such an undertaking has been widely questioned, particularly in light of the inadequacy of India's medical infrastructure in the rural areas. Critics further have raised questions concerning the social and ethical implications of compulsory sterilization and of measures, which penalize the poor through means, which may have adverse effects on their health and welfare. Finally, opponents of the new sterilization measures have suggested that they divert attention from the need for more basic changes in the nation's economic and social structure. While the need for bringing down India's continued high birth rate is widely recognized, alternative population measures like increased abortion facilities and an enforcement of the raised age at marriage have been advocated in lieu of the compulsory sterilization measures currently being proposed (6)".
The abstract above demonstrate some of the concerns that were discussed regarding sterilization when it was first introduced. A lot has happened since. Sterilization has become one of the most significant ways of decreasing the high birth rates in India. In Kerala the population is the most educated compared to other states in India. The state of Kerala, which has the lowest birth rate of women in India, demonstrates that sterilization is a less efficient way of dealing with high birth rates.
It is easy to argue that sterilization is not the answer to fight poverty that significant changes must be done in the nation's infrastructure. The fact of the matter is that kind of changes takes time. In order to improve the future Indian population education, health and economy it is critical to slow the high birth rates already. Sterilization has become common over the last 30 years in India. During this time important lessons have been learned. Prior to November 2005, no uniform compensation was payable for failure of sterilization and no indemnity cover was provided to Doctors/Health facilities providing professional services for conducting

sterilization procedures etc. There was a great demand in the States for Indemnity Insurance cover to doctors/health facilities, since many government doctors were facing litigation due to claims for compensation due to failure of sterilization. This had led to reluctance among the doctors/health facilities to conduct Sterilization operations." In a landmark judgment which strengthens the reproductive health services and aids the population policy of India, the Supreme Court of India have ruled that, for the time being, only doctors with 5 years of gynaecological training will be permitted to carry out sterilization programs. Further, the Government of India will pay Rs 100000 (US$ 2300) in case of death of the patient sterilized, Rs 30 000 in case of incapacity, and in case of post-operative complications, the actual cost of treatment up to Rs 200000. This judgment was delivered in response to public-interest litigation filled by Ramakant Rai alleging widespread non-observance of the guidelines issued by the Central Government's standards of female and male sterilization. The Court agreed to the petitioners' contentions and asked the central government to formulate guidelines for empanelment of doctors, to prepare a checklist which should be used during the procedure, and that all states should maintain statistics pertaining to various aspects of the operation (1). Furthermore, in the family planning Insurance scheme from the Ministry of Health & Family Welfare it is stated that consent from the person being sterilized must be documented (5).


Mursan
INDIA
States and Union Territories
N
TAJIKISTAN
AFGHANISTAN
PAKISTAN
CHINA
TIBET
NEPAL
BHUTAN
BANGLADESH
MYANMAR
Srinagar
JAMMU & KASHMIR
HIMACHAL PRADESH
Shimla
Chandigarh
PUNJAB
Dehradun
UTTARAKHAND
HARYANA
DELHI
Jaipur
RAJASTHAN
UTTAR PRADESH
Lucknow
SIKKIM
Gangtok
Itanagar
ARUNACHAL PRADESH
Dispur
Shillong
ASSAM
(Asom)
NAGALAND
Kohima
MEGHALAYA
Imphal
MANIPUR
Agartala
TRIPURA
Aizawl
MIZORAM
BIHAR
Patna
JHARKHAND
Ranchi
WEST BENGAL
Kolkata
Gandhinagar
GUJARAT
Bhopal
MADHYA PRADESH
Raipur
CHHATTISGARH
Bhubaneshwar
ORISSA
Diu
Daman
Silvassa
DADRA & NAGAR HAVELI
Mumbai
MAHARASHTRA
BAY OF BENGAL
ARABIAN SEA
Hyderabad
ANDHRA PRADESH
Yanam (Puducherry)
Panaji
GOA
KARNATAKA
Bengaluru
Chennai
Puducherry
Karaikal (Puducherry)
Mahe (Puducherry)
Kavaratti
LAKSHADWEEP (INDIA)
TAMIL NADU
KERALA
Thiruvananthapuram
SRI LANKA
INDIAN OCEAN
ANDAMAN & NICOBAR ISLANDS (INDIA)
Port Blair
LEGEND
International Boundary
State Boundary
National Capital
State & U.T. Capital
Map not to Scale
Copyright © 2007 Compare Infobase Limited
www.mapsofindia.com

## 3. METHODS

Empirical data were obtained through interviews of the organizer of the sterilization camps, midwife and director of the clinic; Reidun Refsdal, and other team members. We observed a sterilization camp in Mursan in Dec. 2006. A demonstration of surgical procedure of tubal ligation (the laparoscopic Falope ring method) was carried out by surgeon Dr. Sunita in Hathras hospital.
Statistics were obtained from the files of the Mursan medical centre provided by Reidun Refsdal.
Somyeh Sajadian and Hasina Moaddab have taken all the pictures for illustration.
Comparison data was found through search in Google and Pubmed.

## 4. RESULTS

- **4.1. Sterilization camp. Dec. 4, 2006: Study group**

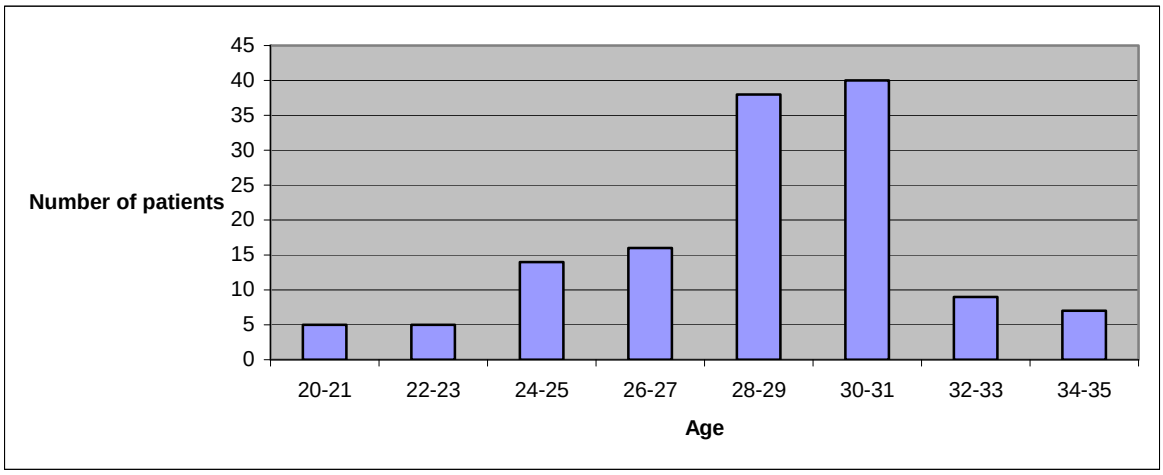
We observed 134 women who underwent surgical sterilization.

***a) Socio-economic***:

The impression we got by observing the sterilization camps in Mursan was that the majority of patients were poor, unschooled, and could not read and write. Conversation with Reidun Refsdal confirmed our observations.

***b) Age:***

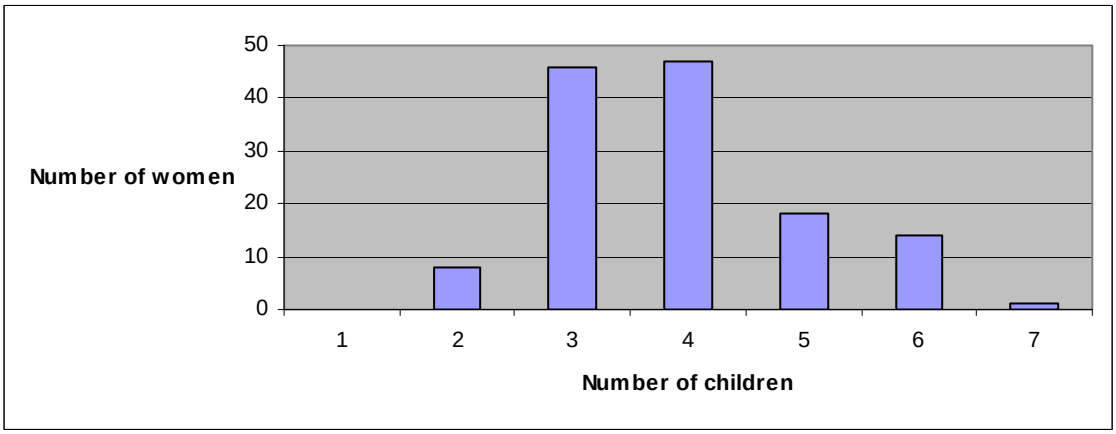
Data we collected showed that the majority of women were young of age. The figure shows the number of women in each age group. The youngest was 20 and the oldest 35. The average age was 26.77 years.




***The number of women in each age group***

***c) Parity:***

The criteria for being allowed to get sterilized was that one should have at least two children, both over 3 years due to that the infant mortality is highest the first 3 years. The average number of children the women had was 3.9, and the mean number of children: 4.




***Parity***

## 4.2. PERFORMANCE OF THE CAMP

### 4.2.1. Preoperative examination:

The day began at 8 pm. The first patients arrived a half an hour later. They were first brought to the laboratory, where sample of urine and blood were collected, and were examined for:

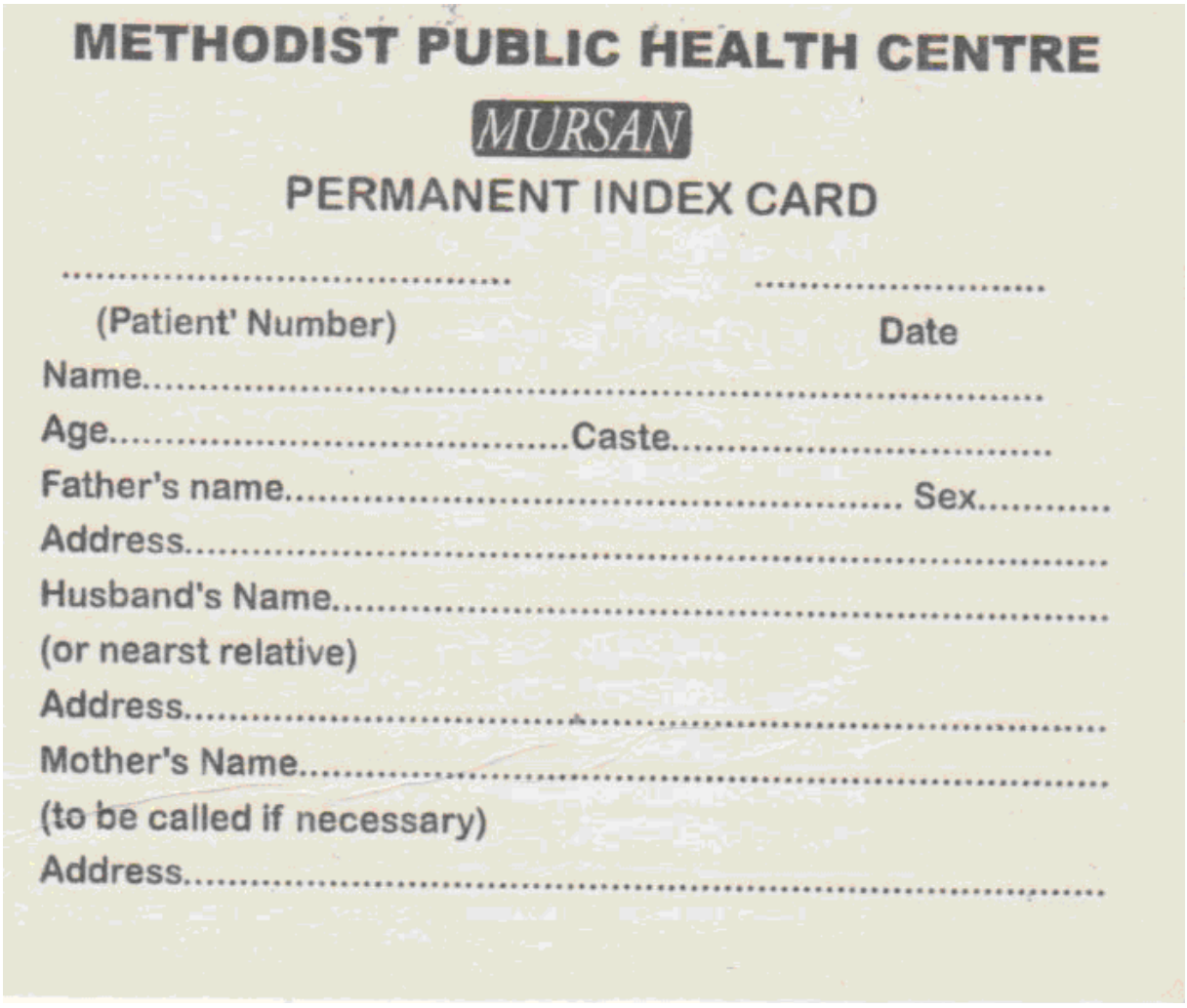
The urine:

1. Pregnancy (HCG)
2. Albumin

The blood:

3. Hb ( Hemoglobin)
4. Hiv
5. HBsAg (Hepatitts B test).
6. Microscopy of urine if needed.

The card bellow was used to register patients; the results were filled in on backside of the card by the laboratory personnel.



METHODIST PUBLIC HEALTH CENTRE

MURSAN

PERMANENT INDEX CARD

..... .....

(Patient' Number) Date

Name.....

Age.....Caste.....

Father's name..... Sex.....

Address.....

Husband's Name.....

(or nearst relative)

Address.....

Mother's Name.....

(to be called if necessary)

Address.....

The laboratory results were available within short time, and the patients received a card with the findings. Now they were ready to pursue to the doctor's examination.
Women were standing in line. Dr. Mamta rang with her bell as a signal to let patient in. She then read the card. If pregnancy test was positive, the patient was automatically excluded from the program. A nurse standing by the doctor continually measured the blood pressure of the patient. If blood pressure was too high, or too low, the patient was excluded. The same criteria for Hb, a value too low, meant no operation. If the patient had HIV or HBsAg positive, then they were excluded.
When the card was evaluated and approved, the patient was directed to the examination table. Dr. Mamta performed a bimanual gynaecological examination. Signs of infection (fever) or enlargement of the uterus, pregnancy automatically discharged the patient. These factors may endanger patient during operation and after. Enlarged uterus is a problem because of the risk of being perforated during the operation. The doctor noted whether the uterus was anterioverted or retroverted. Finally the heart was auscultated, to ensure a normal heart function. The patients then received their card, which doctor signed "ok".

### 4.2.2. The Anaesthesia

The team from government arrived at 13 pm. In front of the operating room, three beds were arranged. Here 6 nurses medicated/drugged the women; some of them staff from the Methodist Clinic, some from the government hospital. The Anastasia process was as followed:

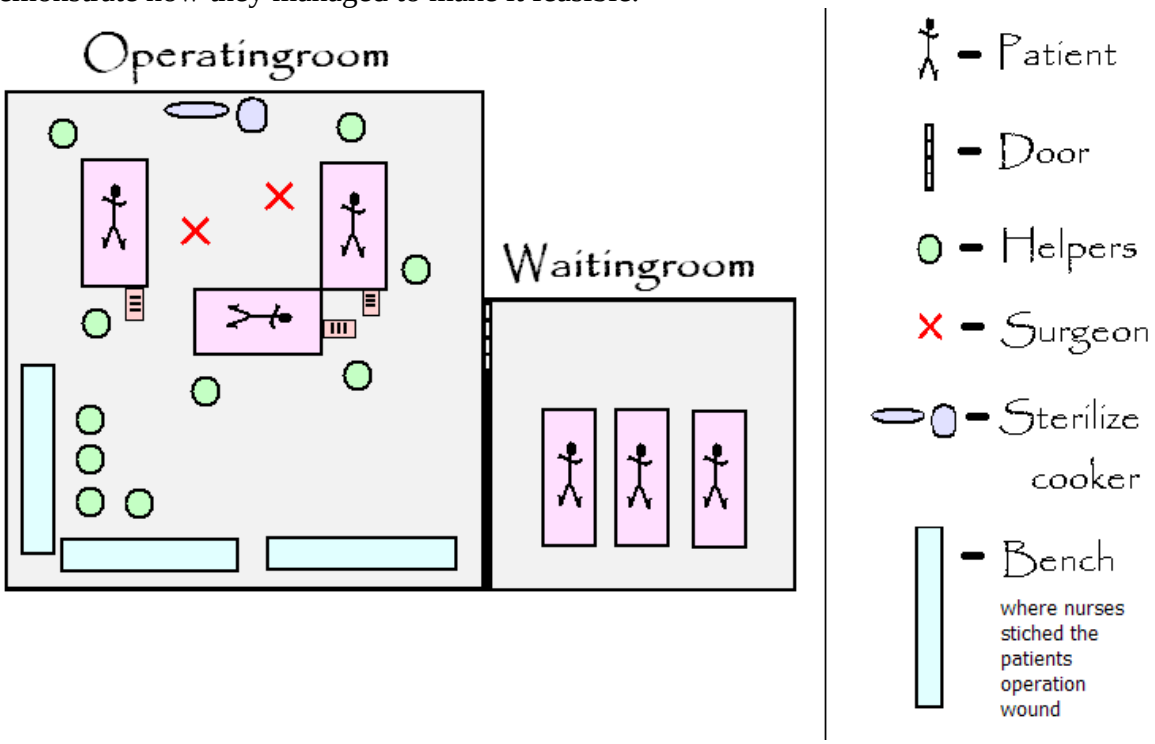
- 1 injection Pentazocin i.m used as sedative.
- 1 injection Promethazine i.m used as sedative.
- 1 injection Atropine i.m. has a muscle relaxation effect. The side effects are tachycardia, which is more common in predisposed patients, cardiac arrhythmia, and abdominal tumours etc. To prevent this, the patients were in the preoperative examination process checked for their blood pressure and heart rate. They were also examined fully somatic.
- As a sensibility test a few drops 2% Xylocain was dropped to the patients eye to see if it was any allergic reaction to Xylocain injection that was going to be injected to them locally. If it was not such hyper sensibility reaction that they were given:
- 1 injection 2% Xylocain local under the umbilicus injected deeply subcutan randomly.
- In the camps done in the Methodist clinic in Mursan since 2002 none of the patients reacted to Xylocain in the eye. But if they were, then the operation with general anaesthesia seems to be the alternative method. This method is not used in the sterilization camps, rather in hospitals. These kinds of patients are not operated in the camps but advised to go to the hospital instead.

After some effect from drugs, patients were assisted by the staff from the Methodist Clinic, to the operation room. Nurses observed them for signs of effect, and then the guys helped them /carried them to the next step: the operation room.

## 4.2.3. The organization of the Sterilization camp

**How do they manage to organize the camps safely and efficiently with so many patients, little numbers of surgeons, limited equipment, and small available space?**

The operating room was approximately 42 m². At all time during the surgery there were approximately 50 people in the room: Patients, nurses, unschooled assistants and 3 surgeons. To reveal how this could be organized in a safe and time sparing way, we made a sketch to demonstrate how they managed to make it feasible.




*Sketch by Somyeh Sajadian*

A little staircase was placed in front of each operation table. The patient was helped up the staircase. Two people were stationed at each table, assisting the surgeon. The operation table was winkled <45.

Two surgeons were standing in the middle, the three operating table encircled them. This way the surgeons could constantly work with no break, since they had averagely 1.5 patients to attend to at all time.

After each sterilization, an assistant behind the surgeon, washed the equipment with boiling water. Now the equipment was ready to be used on another patient.

It was nurses and trained assistants, who stitched the operation- wound and bandaged it.
All people in the room had limited tasks, witch had to be performed in a limited amount of time, in order not to create chaos. Their conducted work can be compared to an assembly line in a factory.

### 4.2.3.1. The tools of surgery

Overview of all instruments used.

*Photo: Hasina Moaddab*

From left: the Varris needle, Canula and Trocar, Scalpel, Forceps, all the instruments together, including the laparoscope.

The laparoscope: Equipped with little white rings, which will be placed on the ovarian tubes.

*Photo: Hasina Moaddab*

## 4.2.3.2. Steps of the laparoscopic Falope ring tubal ligation method

Patient lying on operating table, which is angled < 45 degrees. The intention is to use gravity, with this position vital organs move downward, clearing the operating field

*Photo: Somyeh Sajadian*

Cleaning the operation field with Povidare iodine (Betudin).

*Photo: Somyeh Sajadian*

The belly is lifted with one hand, and varris needle is inserted 0.5 cm bellow umbilicus. The surgeon's aim is to penetrate all layers in abdominal wall, she recognise the penetration of peritoneum as a characteristic hindrance. Once the needle is in the abdominal cavity, it is moved in every direction, ensuring the location of the needle.

*Photo: Hasina Moaddab*

A tube with a balloon is attached to Varris needle. Massive amount of air is blown in, the air form a pillow, thus lifting abdominal wall, and increases the distance to vital organs.

*Photo: Hasina Moaddab*

The Varris needle is removed. A semi lunar incision is made bellow the umbilicus, at the same spot were the needle used to be. Then surgeon performs a firm grip with one hand, holding the abdominal wall. In the other hand, she holds canula with trocar in, which is forced in abdominal cavity through the semi lunar incision, angled 45 degrees. Trocar is sharp and makes the way for the canula. As soon as surgeon realize she is in abdominal cavity, trocar is pulled out of canula, if air comes out of a little hole on canula, surgeon knows that the instrument is in proper position. Canula is pushed completely in abdominal cavity.

*Photo: Hasina Moaddab*

By now some amount of air has managed to escape from abdominal cavity, more air is blown in via a device on the canula.

Finally the surgical procedure itself starts. Canula is the laparoscopic entrance. An assistant is constantly pressuring air in with the balloon to ensure the operation view. The surgeon must orientate via well-known anatomical landmarks. Briefly described: Her aim is to identify fallopian tubes by fimbrial fibries behind the uterus. Surgeon checks her instrument (the laparoscope) to insure that the little white ring is there (at the end of the laparoscope), which she places over fallopian tube, one by one. When the rings are in place, the sterilization is complete.

*Photo: Hasina Moaddab*

*Photo: Somyeh Sajadian*

The canula is retrieved, and surgeon uses mechanical force by hand, pressuring air out of abdomen. She closes the operation wound by stitching with mattress suture. Lastly a bandage is placed. Sterilization time pr patient is averagely 10 – 15 min.

*Photo: Somyeh Sajadian*

## 4.3 Postoperative control of the sterilized patient and the complications:

The Methodist Clinic offers a control in the first week after every sterilization performance. Patients get examined by a nurse. The nurses look for signs of infections and inflammation in the surgical scar. Then they wash it thoroughly with disinfection fluid, and remove the suture if necessary.
Patients get information of the signs for infection and that if it happens they should contact the clinic or another doctor.
Also in other camps performed in other places in Mursan like in the primary health centre and villages around and in Hathras area postoperative controls are offered.

When it comes to the camps arranged in Mursan, in the Methodist Clinic, and the postoperative complications, there are few data, so the total picture is not clarified. There is a lack of registration in the clinic because of the enormous work load. In addition some women choose not to visit the clinic for control.

The doctor in the Methodist Clinic means that the main reason why there are so few complications is the enormous amount of antibiotic that patients get prophylactic ally. The nurses who were responsible for the postoperative control, reported only a few cases where the patients had clear, not purulent fluid, in the operation scar.

Some of the patients still have pain postoperatively. They are usually advised to have little physical activity the weeks after the operation.
Some psychological complications have been reported: like patients relating their later diseases to the operation, like: gastritis, abdominal pain, etc.

We also talked to Dr. Sunita in the Hathras hospital, one of the surgeons that has done most camps in Hathras area included Mursan since 2002. Her opinion about the few reported complications due to good antibiotic prophylactic coverage and the experienced surgeons. She meant that the most common complications are pain, and psychological discomfort.
A small number of infections were treated by antibiotics. Dr.Sunita didn’t have the exact data due to lack of registration. However she estimated the number to be less than 1%.

In summary: there are reported very few complications, partly because of the high dozes of antibiotics used prophylactic ally, partly because of lack of registration. Still the most common complications are pain, psychological discomfort and infections.

## 4.4. Contact between patients and the health care providers

This part describes a typical day at the sterilization camp.

The first reality shock hit us during the preoperative preparation. The room was filled with people. Nurses were running around, the doctor was giving orders, and there was a bunch of nervous women who were talking and looking worried. In Norway one would expect a certain amount of privacy when one is going through something like this. Things like confidentiality, personal care in the meaning of being helped to get a grip of yourself (if one is scared) were not present. The doctor's office was filled with other patients who listened to the doctor-patient consultation. The medical history was broadcasted in the room. The doctor asked questions about their genital, whether they had any infections, bleeding, pregnancy etc. The atmosphere in the room, busy nurses, and a stressed doctor, the women could easily understand that they had no time to hesitate and getting used to the situation. Having their medical history broadcasted was the beginning.

We were told by the staff, that some of these women had never been in touch with health care before this very day. We could easily recognize this by the way the women were behaving: they were frightened when their blood pressure was taken. As the time for the gynaecologic examination approached, the excitement in the room levelled to another altitude. It is important to remember that the doctor had very little time for each patient, and therefore no patience. The staff told the women: "Hurry! Take of your pants. Lay on the bench! Spread your legs, relax, relax! Nervously the women did as they were told. Those who tried and protect their crouch by their hands were lightly brushed by the helping nurse. Many of the nurses had been working all night preparing equipment, organizing the rooms; they were tired, and easily upset. Nurses were running forth and back, following the doctor's command, between the many women in line, who continuously disrupted them. One must admire the way they held themselves steady, and worked efficiently.

After a while, the women in line witnessed that those who had been with the doctor, came unharmed and eased out of the room. Amazingly, many of them now looked eager, and curious, almost pushing each other forward. Nurses challenge now was to stop them looking in the side of the curtain, watching other women being examined." It is not that delighting having ten people watching the doctor putting her finger in ones vagina". Everybody seemed warmed up to each other and the situation. Nurses had given up stopping the women to peak in. The last woman being examined had an on looking audience.

*Photo: Hasina Moaddab*

At 1 pm the government team arrived. The women had been examined and cleared for the operation. They were sitting in line everywhere in the hall, talking and looking unworried. Before the operation could begin, they received proper anaesthesia. We were told that this drug cocktail mixed for them was a heavy doze of goodies, which was a “little” something for pain and sedation. To test if the xylocain would cause allergic reaction, they sprayed some of it in the eye first, to see if any redness appeared. As stressed earlier, efficiency was the motto of the day; the anaesthetic team had little time to describe to every girl of the purpose of what they did to them. It strokes me that having something sprayed in the eye might have been a very traumatic thing for these women. Remember most of the patients were not highly educated and enlightened. They knew in beforehand that they would go through something that would involve their belly region; suddenly something was sprayed in their eyes. Without any medical knowledge it is in fact very illogical that this should be done. Panic started to arouse, they were held so the rest of the shots could be set. This was it, from here on there was no way back. Happily the drugs rapidly started to work, releasing the women from pain, terror and agony. Heavily sedated they needed to be assisted to the operation room, and they were literally dragged to the operation table.

A little staircase was placed in front of each operation table. The patient was helped up the staircase, they were dizzy, many of them almost fell down, when they tried to turn around to sit on the operating table. Grown up women (patients) was acting like children. Although heavily sedated, protests and crying was the summing sound in the room for the rest of the day. They witnessed being cut in the belly, and air being pumped in, and finally the great laparoscope, which was to penetrate the incision and complete the sterilization.

One can only imagine what went through their minds as they watched the whole procedure. At the end of each procedure, some of the women were no longer contactable, their eyes were rolling back, and they had obviously fainted

*Photo: Somyeh Sajadian*

They almost looked dead as they were moved to the other table to stitch their operation wound. Here the screaming started once again. They obviously could feel the pain of the needle penetrating their skin. The men in the room had the responsibility to move the women around. Their facial expression couldn’t hide their excitement. Proudly they demonstrated man power as they lifted the female patient around.

Our college called these men for “the ambulance”. We watched them carry the women to the rooms where they were allowed to rest after the operation. In here the patient were no longer complaining, and they were lying on the floor next to each other, ten in a row, sleeping.

*Photo: Somyeh Sajadian*

This scene made me remember the Latin meaning of the word ambulance. The word comes from the verb ambulare, which means carrying people around. The word was used in ancient time, when wounded soldiers were carried away from the battlefield. Ironically these men truly were “the ambulance” in the original meaning of the word.

The end of the day was approaching, the last women being operated we think were the most unfortunate ones. They witnessed all that was about to happen to them. The last hours of the day, the women waiting were quit. They curiously watched patient being carried away. We had to admire these women, they must have been brave to witness everything, hearing the shouting, and still go through with the procedure.

Ironically in the room next to the operating room and waiting room, a woman was in labour. She was shouting louder than everyone. A child was born, as 134 were sterilized. One can only speculate whether the woman in labour had a motivating effect on the women who was there to be sterilized. After all, they had childbirth next to them. They were there to prevent getting pregnant again. An hour before all sterilization was over, a little boy was born. To see childbirth combined with watching sterilization, it all made sense in a way.

*Photo: Somyeh Sajadian*

## 4.5. Information and recruitment to family planning, especially sterilization

There are several methods that are been used in order to recruit clients in Mursan and the nearby villages to basic health care.

- Every Monday four of the most experienced nurses in The Methodist Clinic go door by door in Mursan and talk to women. Those who have many children or in a risk group for complications in pregnancy or at birth get motivated from nurses to consider sterilization.

- Twice a week to man from The Methodist Clinic drive with a car to the villages around Mursan . They use some hand-written brochures about the Clinic and the next sterilisation camp. Women can always contact the Clinic for further information. They will also inform people about the positive sites of a sterilisation using a loudspeaker. Easier providing for the family already existing, better education and health are some of the issues they take up.

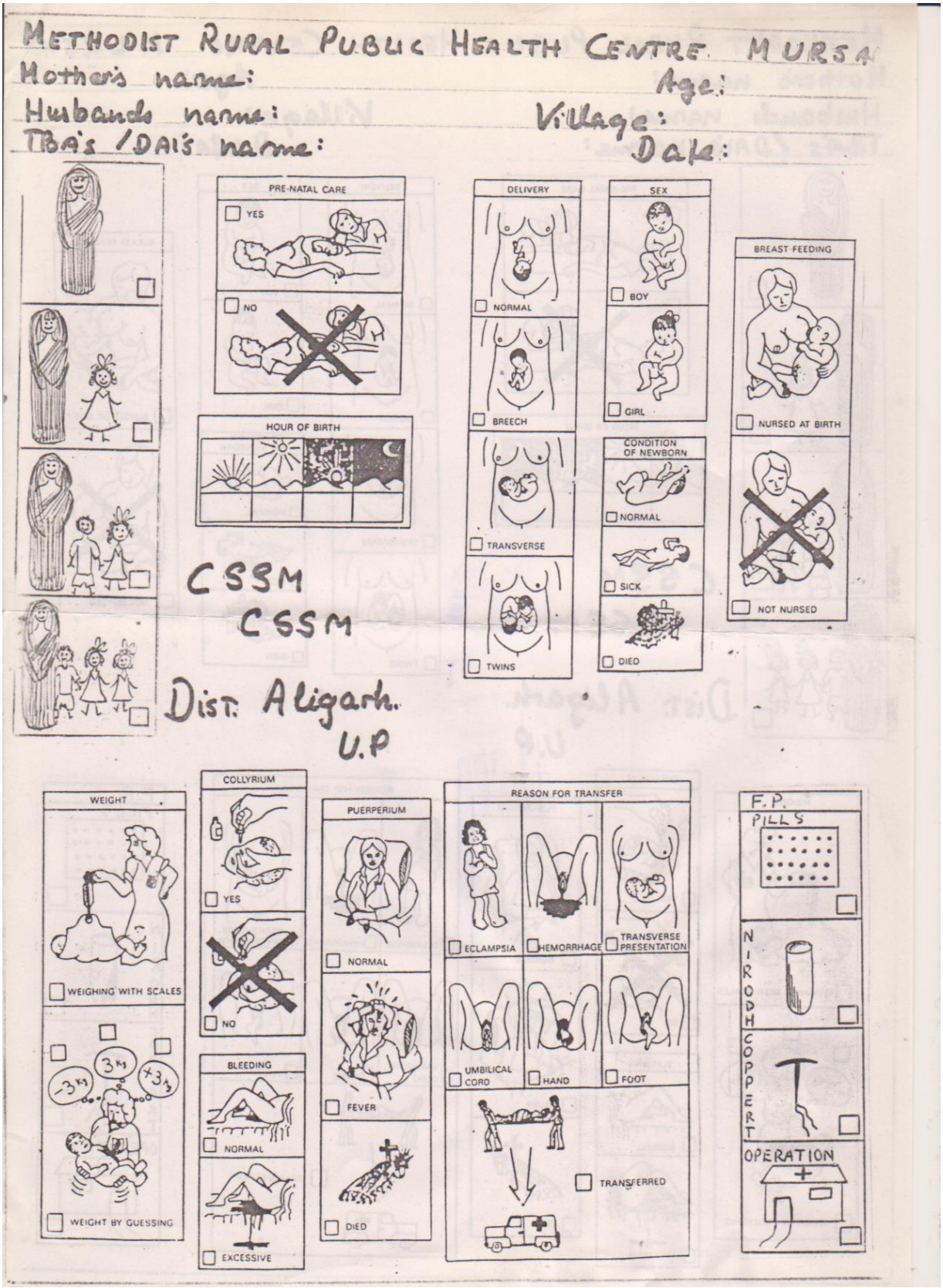
- The Methodist Clinic stab has trained up 10264 women in birth assisting. These women who usually are from the lowest casts are often analphabetic. In the clinic it is made simple forms using pictures that illustrate how many children the patient has, the number of the actual birth, economical and health situation of the family. Birth assistants will use these simple forms to classify which patient is suitable to be motivated for the sterilization. The assistants then motivate these women to contact the Clinic in the next camp.

- Their staff from the Methodist Clinic has from time to time some combined camps were family planning is one of the main issues. They talk to people about the benefits of family planning, the different family planning methods and where they can get more information.

- Also the doctor recommends to the patients whom it's suitable for. Besides permanent sterilization, Copper T and multiload IUD are some of the best temporary contraception tools for women. IUD-s can be changed every 3-4 year . The Government gives Copper T for free. The problem is that it's suitable only for women who have one or two /a few previous births. Those with several children, has to pay themselves for multiload spiral. It costs around 250-300 Rs, which is a lot of money for most of families in these villages.

- Some women use contraceptive pills, which they get for free from the government after examination by a doctor. The biggest problem with this kind of contraception is the lack of compliance.

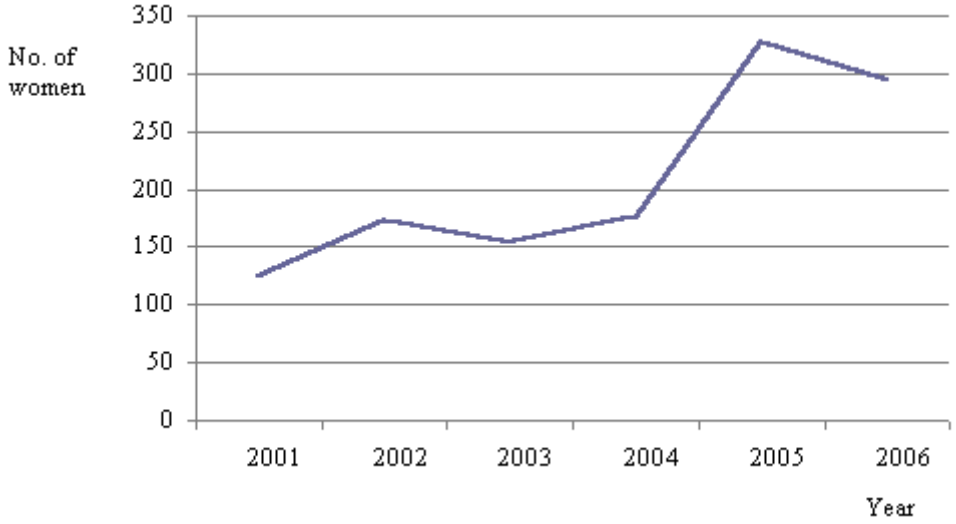
- Condoms are suggested to couples in which one has a venereal disease and the other not. It is also recommended as a temporary contraception tool with the positive protective effect when it comes to venereal disease. It is noticeable that condoms are free, financed by the Indian government. There are many women who give birth in the Methodist Public Health Clinic in Mursan. The staffs is trained to motivate those who are suitable for sterilization considering the women's health risk , but also the economical aspects of the family.




*Simple figure illustrations used by the analphabetic birth assistansts to abtain patients gynaecological history, and at the same time be able to explain different contraceptive methods to the patients.*

## 4.6. Trend in sterilization

Through our study time in Mursan and Hathras we got the impression that sterilization with the Falope ring method is a common used way of family planning. In the Methodist clinic it has been a systematically assembled data since 2001, which shows a growth in numbers of women using sterilization as a way of family planning.




*The figure above shows the number of women undergoing sterilization each year at The Mursan Methodist Public Health Center.*

# 5. DISCUSSION:

Our data was in some extent collected empirically through interviews with the head of the Methodist clinic in Mursan Reidun Refsdal, the doctors, and the staff. The main problem in assembling statistics was that in Mursan many of the women didn't exactly know their birth date. In a study of healthcare infrastructure, contraceptive use and infant mortality in Uttar Pradesh, the mean age of women getting sterilized was 29.74 (3). This data is quite similar to our findings in Mursan.

Due to strong son preference in India, daughters are mistreated, not always kept after birth, though this is illegal, this still happens (10).
When it comes to statistics we collected about number of offspring, they may be incorrect because of the approach mentioned. Unwanted pregnancies and abortions is stigmatised, and may not always be mentioned to health personals (7), therefore this fact can also be a source of errors when it comes to the number of births reported by women.
In a study from Uttar Pradesh they found that mean number of children is 3.49, which is consistent with our observation (3).
The fact that the criteria for getting sterilized is at least two children with a chance of surviving, may demonstrate that the camps are organized in a acceptable way, and also in a patient oriented way. This criteria is a compromise between preventing an explosive population growth, and insuring a woman's satisfaction with a sterilization in a long term, since she has a lot of children at the time she is getting sterilized.

The lack of communication directly with the patients may have caused limited understanding for their decision-making to go through sterilization. The role of the socio-economic factors such as maternal nutritional status, level of education, and better access to healthcare when it comes to the need for sterilization could be examined more thoroughly.

In the article "Healthcare infrastructure, contraceptive use and infant mortality in Uttar Pradesh, India 2005 " it is written that approximately 68% of women had never attended school ( 3). The Household possessions index (0-6) was 2.67. Backward caste (1=yes, 0=no) was 0.51.This data demonstrate that socioeconomic status is low.
There is given an empirical model for contraceptive use and for infant mortality in this article, which shows that the main factors behind a woman's decision to choose sterilization as a contraceptive method.

(Female sterilization)i =a0+a1(woman's age)i a(ever attended school)i
+a3(no. of surviving children)i +a4(no. of surviving children)
+a5(possessions index)i + a6(backward caste)i
+a7(no. of govt.hospitals)i +a8(no. of pvt.hospitals)i
+a9(avg.qualified staff govt.)i +a10(avg.qualified staff private)i
+a11(avg.qualified staff-pvt.agent)i +u1i(i=1,…..,N)

As demonstrated by the empirical model above there, there are several factors, both internal (economy, number of offspring) and external reasons (healthcare facilities) that contribute to the decision of getting sterilized. The most important factors found in this study are related to the woman herself (internal reasons).

We observed that post operative complications are not registered, and we found it astonishing that the surgeon Dr. Sunita impression was that post operative complications are rare (8). The results from a study of postoperative complications after sterilisation in camps in rural West Bengal (2001) are in consistency with Dr. Sunitas observations.
Follow-up studies of 22500 women in a Laparoscopic sterilisation camps from remote areas in Himalayan showed no mortality or major complications. Surgical difficulties were found in obese patients (0.42%), those with scar in the lower abdomen (0.99%), early pregnancy (2.2%), early puerperal cases(1.83%) and cases with pelvic inflammatory disease (4.5%). Difficulties were also found in cases of post burn contracture of the lower abdomen (0.02%). There were 420 cases where some sorts of complications were encountered. Complications included minor perforation of the uterus (1.8%),transaction of tubes(0.27%), bleeding from cervical tear(0.15%), and omental prolaps (0.04%) (9).

In another study in Thailand with similar methods, a retrospective study with 11 years experience, concludes that :outpatient laparoscopic tubal sterilisation under the combination of intravenous sedatin and local anaesthesia is a convenient and relatively safe procedure (3). Minor intra-operative complications were found in 4.6% of cases. The most frequent complications were meso-salphingeal and meso-ovarian bleeding. Also no serious complications were found in this study (3).

In an article called ”Impact of tubal sterilization on women’s health”, a total of 127 women who had tubal sterilization between 2000-2005 were asked about their satisfaction with the method, their regrets and complaints, the effects of the tubal sterilization on their sexual life and their actual health(2). While 95% of the women were satisfied with the operation, only 76.9% of the patients would recommend this method to other women. Although 23.1% reported changes in their sexual life after the sterilization, 30% reported changes in their menstrual cycle and 35% reported lower abdominal pain, two-thirds of the women did not sate any significant complaint. Women who underwent the procedure at least two years before had fewer complaints; high school graduates and more educated women reported more changes in their sexual life. Women who had tubal sterilization were mostly satisfied with the method and were willing to recommend it to another woman(2).

Though it seems like laparoscopic tubal sterilization is a procedure with very few postoperative complications based on the observations of the doctors in the sterilization camp, and also the same is described in several articles, we miss that no one has thought of extra uterine pregnancy as a possible complication. This acute abdominal complication may occur several months to years after the sterilization. It is likely that doctors do not relate this complication to the previous sterilization.

We collected data that shows an increase of number of women getting sterilized from 125 patients in year 2001 to 295 in year 2006. A study described in an article called “Women’s health in India” shows that 67% of women are using sterilization as a way of family planning (10). The question is if this trend is because of the benefits a private clinic provides the patients or if this is generally a common trend representing the population. One can speculate about the reasons for this trend. From our point of view, due to what we chose to investigate during our observation study, namely the surgical procedure, the anaesthesia that was offered, the organization of the sterilization camp, the information and care the women received, not least post operative complications, it is not unlikely that this trend has it roots in the fact that the women are pleased with the results.

We tried to compare the public facilities provided by the government of India in Hathras and the Public Health centre in Mursan with the private Methodist rural health centre in Mursan. Our findings could have been more systematically defined, in order to give the reader the right impression that the private health centres are definitely the best option for the patient considering the facilities, hygienic standards, economic refund, transport, and qualified help personnel.

Furthermore our thesis is based on only one sterilization camp in the Methodist clinic, and a demonstration of the procedure in Hospital in Hathras. Obviously, if we had seen and evaluated more camps the validity of our results and observation would have been stronger.

Because of limited observation time during the day of the sterilization camp, and busy health personnel some important aspects especially regarding the exclusion criteria may have been lost. The day was most eventful, with a lot of new impressions, which may have caused us to overlook things that could have been relevant.

## 6. CONCLUSION:

Through our study time in Mursan and Hathras we got the impression that the laparoscopic sterilization is a safe, acceptable way of family planning. It seems to be the most common of contraceptive method in this population with a high percent of analphabetic and low socio economic status.

The information given to women both preoperatively and postoperatively could be more detailed. However considering the high working load and the staff-deficiency, it was performed in an optimal way.

We can conclude the way reproductive sterilization is performed in rural areas in India like the village Mursan is acceptable, safe, and beneficiary to the women. However more information to the clients is desirable.

## 7. APPENDIX
## STERILIZATION OTHER PLACES THAN IN THE METHODIST CLINIC:

In the region of Hathras, where Mursan belongs to there are some sterilisation camps primary hold in the Primary Health Centre in the villages.

In Mursan every Tuesday there are between 1 to 10 patients who get sterilized by a government doctor, in Mursan Dr. Sunita. Also here there were not a lot of complications reported. Every patient gets 125 Rs from the government, and not other facilities like extra money (100 Rs) and wool blanket, like getting food and a drive home.

Also in the Government Hospital in Hathras there are some women who get sterilized. The amount of money they get is also the 125 Rps from the government.
We went to The Government Hospital in Hathras one day to interview the surgeon who performed the sterilization camp in Mursan the 4. December, Dr. Sunita. She had just treated a patient for abortion (8 weeks), half an hour before she performed a sterilization operation on this patient. So patients who are pregnant and want an abortion, who can't get it in places like the Methodist clinic and in the primary health centres in some small villages, can get in government hospitals, than get sterilized after that. Also here very few complications are reported, mainly psychiatric ones, or infections which get treated by antibiotics.

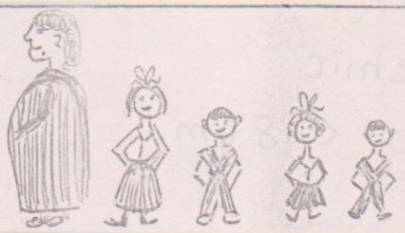
The main difference between these options for sterilization in the region of Hathras, is some better facilities in private centres like the Methodist clinic... Often women who wants, to be sterilized are pregnant. For these women sterilization on Methodist Clinic is not an option. The reason is that Methodist clinic doesn't think its ethical right to perform an abortion. This is a due to the fact that this is a Christian organization.

## Figure illustrations to describe high risc pregnancies:

Methodist Public Health Centre
Mursan 204213
Dist. Aligarh, U.P.

High Risk - खतरा

1.  १८ साल ⟷ 30 साल

2. 
PRIMI
OR

More than 4

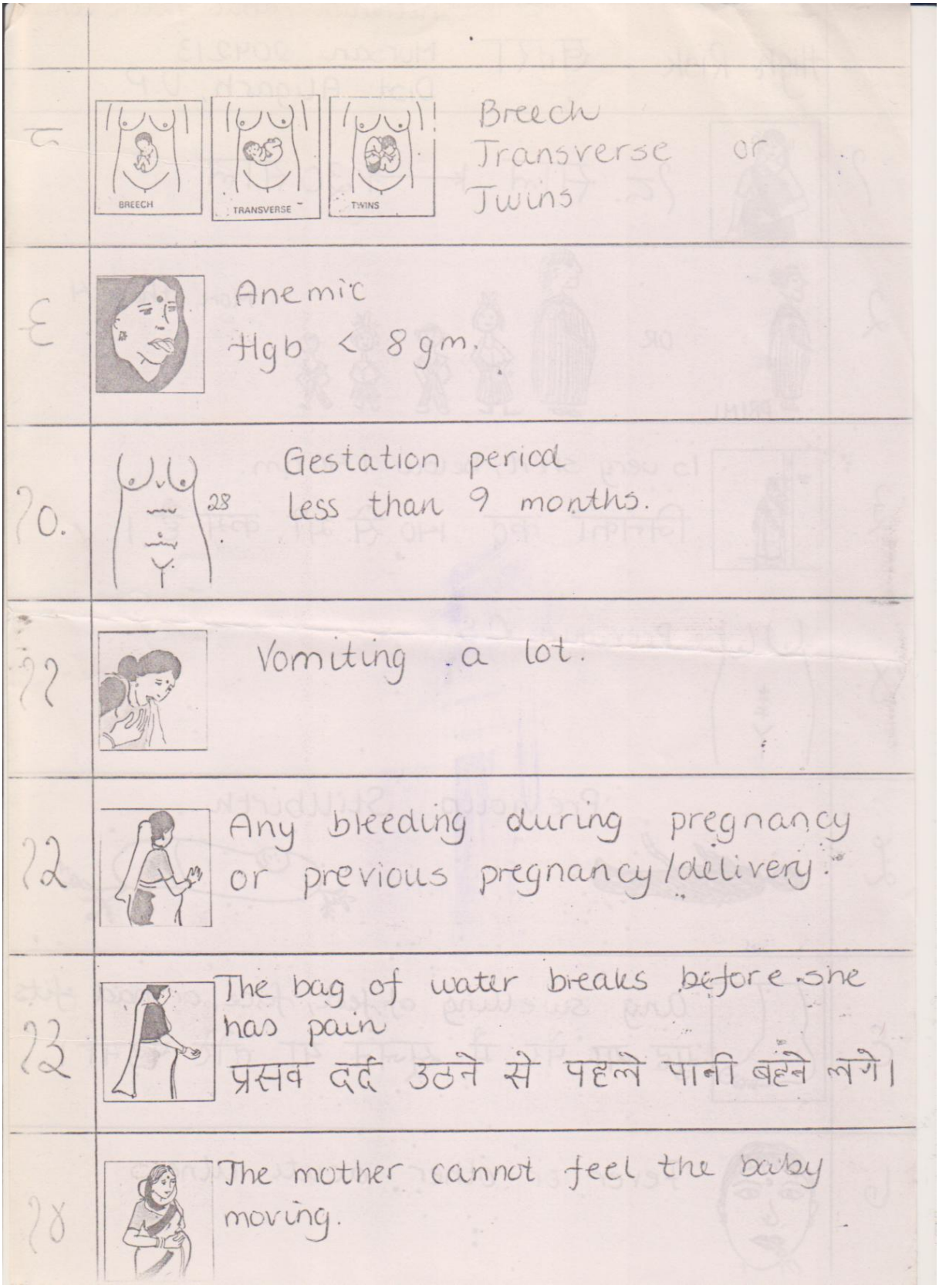
3. 
Is very short, below 1.40 cm.
जिनका कद 140 से. मी. कम है।

4. 
Previous C.S.

5. Previous Stillbirth

6. 
Any swelling of feet, face or had fits
मुह या पैर में सूजन या दौरे पड़ना।

7. 
Fever or other acute illness




*Simple figure illustrations used by the analphabetic birth assistansts to distinguish if patient has a high risk pregnancy.*

## 7.1 Acknowledgements:

The work described was a part of our thesis for the degree of Cand. Med. Carried out at The Methodist Clinic in Mursan India.

We are most grateful to our supervisor in Mursan, Reidun Refsdal, for great support and a very exciting and instructive few weeks of study.

We also thank Dr. Mamta, Dr. Sunita and the rest of the staff at the Methodist Clinic for their support and engagement.

Thanks to all the staff in primary health centre in Mursan, and the Hathras Hospital.

Our supervisor in Oslo, professor Babill Stray-Pedersen is sincerely thanked for making it possible to go to India to for our work on the thesis and giving necessary feedback.

Particular thanks to Vinod Mishra, who chose us out of many students, and gave us the opportunity for this unique experience.

**REFERENCES**

**1.Bansal. RK ,Guidelines for sterilisation in India, 2005, 365: (9477), 2090.**

**2. Basgul A. Impact of tubal sterilization on womens health 2007, 34(1):39-41.**

**3. Bhargava,A. Healthcare infrastructure, contraceptive use and infant mortality in Uttar Pradesh, India, 2005, 3 ( 3): 338-404.**

**4. Chaovisitsaree S. Immediate complications of laparoscopic tubal sterilization: 11 years of experience. J Med Assoc Thai 2004, 87(10):1147-50.**

**5. Government of India, Family planning insurance sheme, 2008, http://www.mohfw.nic.in/TENDER%20DOCUMENT%20-%20WEBSITE.htm**

**6. Minkler.M, Thinking the unthinkable:the prospect of compulsory sterilization in India, 1977; 7(2):237-48**

**7. Personal communication: Reidun Refsdal, (Methodist Rural Public Health Centre, Mursan)**

**8. Personal communication: Dr. Sunita Kumari (Hathras Hospital)**

**9. Ray A. Problems of laparoscopic sterilization camps in rural West Bengal, J Indian Med Assoc 2001, 99(9): 493-6.**

**10. Velkoff, V A ,Womens Health in India, 2005, 365: ( 9477), 2090.**